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Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: **Wireless Internet Service Providers Association Ex Parte Letter**
Use of Spectrum Bands Above 24 GHz, *et al.*, WT Docket No. 14-177, IB Docket No. 15-256, RM-11664, WT Docket No. 10-112, IB Docket No. 97-95

Dear Ms. Dortch:

The Wireless Internet Service Providers Association ("WISPA")[1] urges the Commission to reaffirm the technologically neutral, pro-competition decisions in the *Spectrum Frontiers R&O and FNPRM*,[2] and to finalize the sharing rules for the 37-37.6 GHz band to enable its use in the near term. The Commission can act now to ensure the United States capitalizes on *all* the benefits of the millimeter wave ("mmW") bands, including by enhancing the availability of fixed wireless broadband in communities across the country.

In the *Spectrum Frontiers R&O and FNPRM*, the Commission created a regulatory paradigm that is technology and provider agnostic, relying on multiple spectrum access mechanisms, including exclusively licensed, shared licensed, and unlicensed. As a result, industries across multiple sectors of the U.S. economy are ramping up efforts to develop new technologies, businesses, and services. WISPA appreciates the decisions in the *Draft Second*

[1] WISPA is the trade association that represents the interests of wireless Internet service providers (WISPs) that provide IP-based fixed wireless broadband services to consumers, businesses, and anchor institutions across the country. WISPA's members include more than 800 WISPs, equipment manufacturers, distributors and other entities committed to providing affordable and competitive fixed broadband services. WISPs use unlicensed, lightly-licensed and licensed spectrum to deliver last-mile broadband and voice services to more than four million people, many of whom reside in rural areas and areas that would otherwise be unserved or underserved.

[2] *Use of Spectrum Bands Above 24 GHz, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016) ("*Spectrum Frontiers R&O and FNPRM*").

R&O[3] to preserve the spectrum aggregation threshold for secondary market transactions and to reaffirm the decision to make the 64-71 GHz band available on an unlicensed basis. The Commission can further support these efforts and maintain its world leadership role by **1)** rejecting petitions for reconsideration of its decision to make the 37-37.6 GHz band available on a coordinated, licensed shared basis;[4] **2)** proposing rules for coordinated sharing in the 37-37.6 GHz band; and **3)** conducting the spectrum aggregation review in its short-form auction application review process or during the auction.

Fixed Wireless Broadband is Leading the Way on mmW Deployments

Fixed wireless broadband is the greatest near-term opportunity for substantial innovation and investment in the mmW bands. Even before mobile standards are set, equipment vendors and service providers are rolling out tests and actual services relying on new fixed technologies.[5] Rural communities, unserved and underserved communities, and consumers without broadband choice are for once positioned to be some of the first to gain access to this new technology, unlike other generations of wireless services that are primarily focused on mobility.

WISPs have a long history of using mmW spectrum for a variety of purposes, including to provide backhaul to hard-to-reach network elements, and to serve individual customers.[6] New technologies dramatically improve the viability of mmW bands to meet WISPs' network needs, which can become a robust part of a spectrum toolbox that includes unlicensed bands and the Citizens Broadband Radio Service ("CBRS").[7]

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[3] *Use of Spectrum Bands Above 24 GHz, et al.*, Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, *Circulation Draft* ¶¶ 73, 152-155 (Oct. 26, 2017) ("*Draft Second R&O*").

[4] *See* CTIA-The Wireless Association Petition for Reconsideration at 24-26 (Dec. 14, 2016); Competitive Carriers Association Petition for Reconsideration at 6-7 (Dec. 14, 2016); T-Mobile Petition for Reconsideration at 6-8 (Dec. 14, 2016); 5G Americas Petition for Reconsideration at 3-9 (Dec. 14, 2016). The *Draft Second R&O* indicates that the Commission proposes to act on petitions for reconsideration at some future time. *See Draft Second R&O* at 7 n.34.

[5] *See* Dane Jones, Light Reading 5G, *Nokia Gets in on Verizon 5G Tests* (June 1, 2017), http://www.lightreading.com/mobile/5g/nokia-gets-in-on-verizon-5g-tests/d/d-id/733354; Joan Engebreston, Telecompetitor, *U.S. Cellular 5G Fixed Wireless Tests: 8.5 Gbps Using Macrocell Antennas at 28 GHz* (Oct. 25, 2017), http://www.telecompetitor.com/u-s-cellular-5g-fixed-wireless-tests-8-5-gbps-using-macrocell-antennas-at-28-ghz/; Sean Kinney, RCR Wireless, *AT&T, Verizon Want to Continue Testing 5G in 28 GHz Band* (Aug. 16, 2017), https://www.rcrwireless.com/20170816/5g/att-verizon-5g-testing-28-ghz-tag17; Mari Sibley, Light Reading, *Starry Fixed Wireless Debuts at $50/Month* (July 31, 2017), http://www.lightreading.com/services/broadband-services/starry-fixed-wireless-debuts-at-$50-month/d/d-id/735022.

[6] WISPs use a variety of spectrum bands for point-to-point operations under Part 101 of the Commission's rules. WISPS are also early adopters of WiGig technologies operating in the 57-64 GHz band, which are useful for short-range connections.

[7] Because millimeter wave spectrum is line-of-sight, it is not a single solution. In practice WISPs will have to continue to rely on a variety of spectrum bands depending upon bandwidth demands, topography, cost, and other factors.

In particular, mmW technologies can provide multi-gigabit end user connections at low cost. The combination of wide channel bandwidths, phased array antennas, and MIMO enable incredibly robust broadband speeds. Adding beamforming to this technology stack means that very narrow beamwidth spectrum can now be used for point-to-multipoint network hubs. The result is a technology that can serve multiple – hundreds or more – customers with gigabit service using one base station over medium distances.

But WISP access to this technology will not occur unless the Commission upholds its technologically-neutral pro-competition policies. Specifically, the Commission should reaffirm its decision to strike a balance between spectrum access methods, specifically by rejecting the petitions for reconsideration of the decision to make the 37-37.6 GHz band available on a co-primary, coordinated shared basis; finalizing the rules for sharing in the 37-37.6 GHz band; and applying the well-considered spectrum aggregation limit in pre-auction applications or during the auction.

The Commission Should Retain the Balance Struck Between Exclusively Licensed, Shared Licensed, and Unlicensed

In the *Spectrum Frontiers R&O and FNPRM*, the Commission made 3.25 gigahertz of spectrum available on an exclusively-licensed basis, 600 megahertz on a shared licensed basis, and 7 gigahertz on an unlicensed basis.[8] The Commission correctly justified its strategic approach, highlighting the benefits of multiple access schemes given the early stages of mmW technology development.[9] This strategy makes sense – even now, almost 18 months after the *Spectrum Frontiers R&O and FNPRM* was adopted, there is no single view of the universe of potential technologies and services that will emerge in these bands. Establishing spectrum access schemes that by their nature foreclose the development of new wireless technologies and services would run counter to the Commission's goals.

For instance, WISPs would generally find it difficult to compete with large companies at auction if spectrum were exclusively licensed in large geographic blocks such as Partial Economic Areas. The Commission rightly recognized that there is a technology and service ecosystem that can benefit from low-barrier access to quality mmW spectrum when it made the 37-37.6 GHz band available on a coordinated shared basis.[10] This comes at no cost to providers who prefer exclusively-licensed spectrum; the *Draft Second R&O* proposes to add another 1.7 gigahertz of exclusively-licensed spectrum, bringing the total to 4.95 gigahertz.[11]

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[8] *See Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8018, ¶ 4.
[9] *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8018, ¶ 3.
[10] *Id.* at 8060, ¶¶ 113-14.
[11] The mobile wireless industry has asked the FCC to make significantly more spectrum – upwards of 20 gigahertz – available for exclusive-use licensing. *See* CTIA-The Wireless Association Ex Parte (July 14, 2017). The 37-37.6 GHz band is also an opportunity to further enhanced spectrum sharing between commercial and federal users.

Additionally, the Commission recognized the physical properties of these spectrum bands and the opportunity to enable robust and efficient use through sharing and unlicensed access schemes.[12] Millimeter wave spectrum is local by nature – it is highly directional, does not travel through obstacles, and some bands are significantly attenuated by the atmosphere.[13] These properties make it well-suited for coordinated shared environments. Further, given the very short propagation distances in the 64-71 GHz band, there is not a cognizable exclusive licensing scheme that is even feasible. It is not only irrational and impractical, but highly inefficient to exclusively-license all the spectrum that propagates best over meters to a few kilometers in distance.

Just as the Commission proposes in the *Draft Second R&O* to affirm its decision to make the 64-71 GHz band available on an unlicensed basis, the Commission should retain a balance and also affirm its decision to make the 37-37.6 GHz band available on a licensed shared basis. By reaffirming its decisions and finalizing the sharing rules in the *Spectrum Frontiers Second R&O and FNPRM*,[14] the Commission can provide the certainty to the marketplace (and federal users) to begin to invest in the development and deployment of these new technologies. WISPs are already early adopters of WiGig technologies, and are comfortable operating in shared spectrum environments. The timing is optimal – WISPs and other users can consider a network strategy that incorporates CBRS, 37-37.6 GHz, the 60 GHz band at the same time. Instead of having to layer in additional bands and technologies, and potentially raise additional capital to do so, WISPS can use all of these spectrum tools to plan improvements to existing networks and expansion of new networks all at once.

The Commission Should Encourage Robust Competition by Maintaining Reasonable Spectrum Aggregation Limits

Just as the Commission struck a balance between spectrum access schemes that recognized the opportunity to incubate a variety of potential technologies and services, it also recognized the risk of only a few providers consolidating all of the exclusively-licensed spectrum.[15] WISPA appreciates that the *Draft Second R&O* retains the aggregation threshold, which is a reasonable check against anti-competitive aggregation in the secondary market or at auction.[16] Allowing any provider to aggregate more than one-third of the available spectrum in any county, particularly without a public interest review, will unreasonably inhibit access to this spectrum for competing services and purposes at a time when the technology and associated business plans are still under development.

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[12] *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8060, ¶¶ 113-14, 130.
[13] *See* Andrea Goldsmith, Stanford University, *mmWave 101: Technical Basics*, ISART 2017: Spectrum Mining at Millimeter Waves (Aug. 15, 2017), https://www.its.bldrdoc.gov/media/66425/goldsmith_isart2017.pdf; *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8163.
[14] In order to move forward with the sharing framework, we suggest the Commission adopt an approach that enables sharing in the near term based upon a simple sharing framework, and enhances the framework over time to make it more dynamic. *See* Starry, Inc. Ex Parte (July 14, 2017).
[15] *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8081-82, ¶¶ 183-86.
[16] *Draft Second R&O* at 23-4, ¶ 73.

However, by not conducting the review during the short-form application review or applying it during the auction, bidders lack important information about the post-auction market necessary to develop effective bidding strategies. Furthermore, conducting the aggregation review during the post-auction long form application process will inevitably result in the Commission retaining licenses in inventory.[17] Given the long lead times for conducting auctions, this would result in the Commission retaining incredibly valuable spectrum assets that would be better used in the marketplace. We therefore urge the Commission to conduct the spectrum aggregation analysis during the pre-auction short-form application review or during the auction.

Conclusion

The Commission can act now to enhance and improve fixed broadband in communities across the country. For the first time, unserved and underserved communities will be among the first to share in the advances that mmW technologies can bring. WISPA urges the Commission to maintain the balanced approach to spectrum access by denying the petitions for reconsideration of the decision to make the 37-37.6 GH band available on a licensed shared basis, finalizing the rules for sharing in the 37-37.6 GHz band, and conducting the spectrum aggregation review in pre-auction application review process or during the auction.

Respectfully submitted,

/s/ Stephen E. Coran
Stephen E. Coran

[17] This would occur because a licensee would either reject the licenses it won or return licenses it holds.